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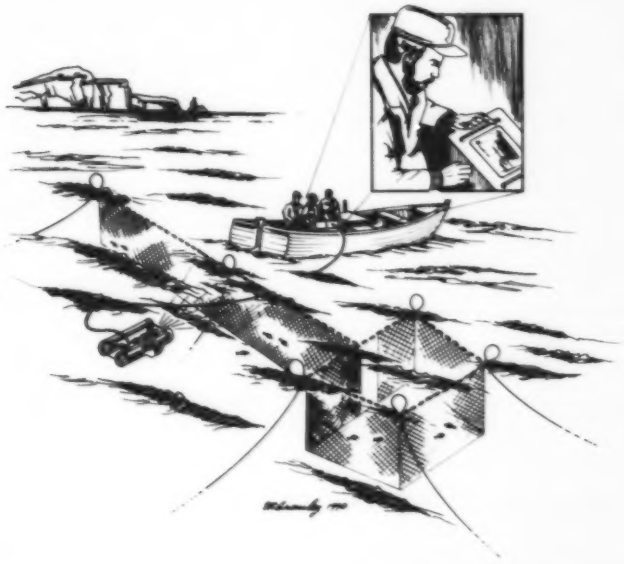
PROJECT SUMMARY

ATLANTIC FISHERIES DEVELOPMENT

Newfoundland Region
No. 18, March 1990

UNDERWATER COD TRAP OBSERVATIONS



PURPOSE

To provide cod trap fishermen with an opportunity to improve the harvesting efficiency of their fishing gear by observing their traps in actual fishing conditions. This would enable them to identify problems associated with the design of the trap, mooring systems, position of the trap relative to the seabed, and the topography of the sites (berths) where cod traps are set.

BACKGROUND

In 1988, 16 cod traps operated by Newfoundland cod trap crews were observed in the set position using a remotely-operated vehicle (R.O.V.) equipped with an underwater video camera system. Operators of these traps were enabled to visually identify specific problems and take corrective measures to improve the fishing effectiveness of the traps.

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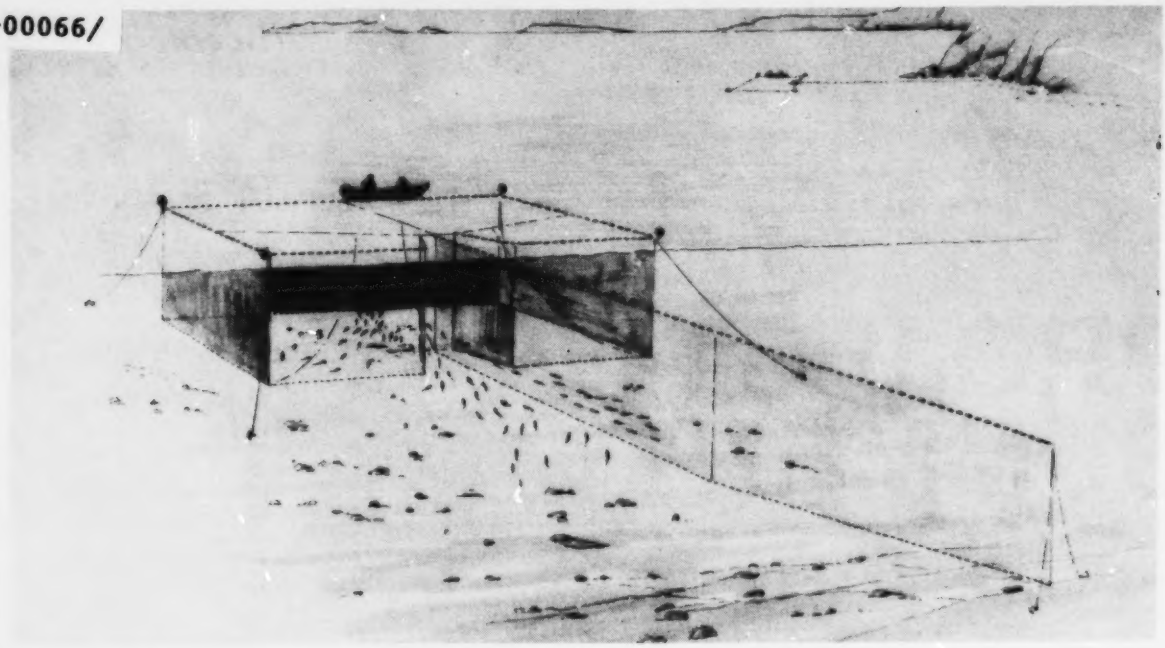

In response to requests received from fishermen in many other communities to continue these visual observations of cod traps, the Fisheries Development Division, Department of Fisheries and Oceans, implemented a project in 1989 designed to select traps for observation utilizing an R.O.V. with an underwater video camera. Fishermen's Committees in selected communities were contacted and, in consultation with community fishermen, identified the traps to be observed. A support vessel used to conduct operations was also provided by the committees.

EQUIPMENT

R.O.V. "Phantom 500"

500 ft. umbilical cord

VHS recorder and monitor

3,000 watt gas generator

DESCRIPTION

Today, in Newfoundland and Labrador, there are mainly three types of traps used by cod trap fishermen, namely: the standard Newfoundland trap, the modified Newfoundland trap and the Japanese trap.

A cod trap is basically a box constructed of netting. Each trap has a bottom and four sides with a doorway in the front wall through which fish enter the trap. Extending outward from the center of the doorway is a long wall of netting, or leader, which directs or leads fish into the trap. Most traps measure anywhere from 100 - 150 meters (60 - 80 fathoms) in circumference and 18 - 30 meters (10 - 15 fathoms) deep.

The most important components of any trap are its leader and doorway. If these are not designed and set properly in relation to the trap and the seabed, the trap will not fish to its maximum capability.

For the purpose of this project, it was felt that these two areas would receive priority when conducting observations. This would reduce the amount of camera time spent at each trap and allow R.O.V. operators to observe more traps in a given time period.

RESULTS

The communities where underwater observations were conducted for this project were as follows:

- Torbay, Portugal Cove, Flat Rock, Pouch Cove and Bauline
- Old Perlican
- Tilting, Seldom, Joe Batt's Arm, Fogo
- Conche, Englee
- LaScie, Shoe Cove

Ninety-eight (98) traps were monitored during this project, of which 10% were the standard Newfoundland trap, 27% the modified Newfoundland trap and 63% the Japanese traps. 82% of the traps observed had problems which were not distinctive to any particular type of trap. Problems identified during the project were as follows:

1. Footrope of leader off bottom due to seabed slope and/or insufficient number of leads on footropes
2. Center mooring too tight causing doorways to rise off bottom

R.O.V. Phantom 500 and Power Generator

3. Footrope of leader off bottom at mouth of trap
4. Insufficient number of leads at front of trap
5. Mouth of trap tangled in leader
6. Mouth of trap off bottom due to slope of seabed
7. Corner moorings too tight, keeping front of trap off bottom
8. Haul-up ropes too tight, keeping front of trap off bottom

DISCUSSION

Remotely-operated underwater camera systems provide an effective means for direct observation of cod traps. With effective co-ordination, and in co-operation with trap fishermen, the project team were able to observe up to 12 traps per day. Ideally, such systems should be equipped with pan and tilt cameras which would enhance vehicle maneuverability in and around traps by providing a better field of view to observe ropes, netting and other obstacles.

Cost of using the R.O.V. (Phantom 500) and similar units vary. During this project, daily rental amounted to $580.00/day for the system and one operator. Support costs also vary depending on travel distance, duration etc. Table I provides an estimate of costs to a trap fisherman or a group of fishermen using an R.O.V. to monitor traps.

A cost of $133.33 per trap would be incurred assuming that six traps can be observed per day. This cost, which is the value of 356 kg (784 lbs) of cod based on a price of $0.37/kg ($.17/lb), could soon be recovered if problems were identified with the trap and corrective measures taken to get the trap into proper and efficient fishing order.

Table I PROJECTED COSTS FOR COD TRAP OBSERVATION

R.O.V. rental (includes operator)	$600.00/day
Accommodation, meals for operator	$100.00/day
Average transportation (company vehicle + gas)	$100.00/day
Total	$800.00/day

Some fishermen have successfully employed SCUBA divers to check the condition of their traps. This is also an option that could be used to improve cod trap performance. Whichever option is used, either R.O.V.'s or divers, the fact remains that the technology is available to provide fishermen the opportunity to look below the surface of the ocean and observe how their traps are fishing and what changes may be required to improve fishing performance.

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